WHAT IS CLAIMED IS:

1. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region, the plate being formed with a plurality of perforated holes which the radicals pass through, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

2. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets and an inner side wall, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma

including radicals;

a plate arranged between the plasma generation region and the processing region with no gap left between the plate and the inner side wall, the plate being formed with a plurality of perforated holes which the radicals pass through, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

3. A remote plasma apparatus as claimed in claim 2, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

4. A remote plasma apparatus as claimed in claim 2, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

5. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to

introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region, the plate being formed with a plurality of perforated holes which the radicals pass through and each of which has a diameter not larger than three millimeter, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

6. A remote plasma apparatus as claimed in claim 5, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

7. A remote plasma apparatus as claimed in claim 5, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier

plenum and the gas injection holes .

8. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets and inner side wall, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region with no gap left between the plate and the inner side wall, the plate being formed with a plurality of perforated holes which the radicals pass through and each of which has a diameter not larger than three millimeter, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

9. A remote plasma apparatus as claimed in claim 8, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

10. A remote plasma apparatus as claimed in claim 8, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the

upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

11. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a closure electrode arranged within the cavity and defining the plasma generation region in cooperation with the body, the closure electrode being electrically grounded to allow the radicals to pass through the closure electrode;

a plate arranged within the cavity and defining the processing region in cooperation with the body, the plate being formed with a plurality of perforated holes which the radicals pass through, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the

second gas supplied through the second inlet.

12. A remote plasma apparatus as claimed in claim 11, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

13. A remote plasma apparatus as claimed in claim 11, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

14. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets and an inner side wall, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a closure electrode arranged within the cavity and defining the plasma generation region in cooperation with the body, the closure

electrode being electrically grounded to allow the radicals to pass through the closure electrode;

a plate arranged within the cavity with no gap left between the plate and the inner side wall so as to define the processing region, the plate being formed with a plurality of perforated holes which the radicals pass through, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

15. A remote plasma apparatus as claimed in claim 14, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

16. A remote plasma apparatus as claimed in claim 14, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

17. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets, the

cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a closure electrode arranged within the cavity and defining the plasma generation region in cooperation with the body, the closure electrode being electrically grounded to allow the radicals to pass through the closure electrode;

a plate arranged within the cavity and defining the processing region in cooperation with the body, the plate being formed with a plurality of perforated holes which the radicals pass through and each of which has a diameter not larger than three millimeter, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

18. A remote plasma apparatus as claimed in claim 17, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

19. A remote plasma apparatus as claimed in claim 18, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

20. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets and inner side wall, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a closure electrode arranged within the cavity and defining the plasma generation region in cooperation with the body, the closure electrode being electrically grounded to allow the radicals to pass through the closure electrode;

a plate arranged within the cavity with no gap left between the plate and the inner side wall so as to define the processing region, the plate being formed with a plurality of perforated holes which the radicals pass through and each of which has a diameter not larger than three millimeter, wherein aperture ratio of the perforated holes to the

plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

21. A remote plasma apparatus as claimed in claim 20, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

22. A remote plasma apparatus as claimed in claim 20, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

23. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region, the plate being electrically grounded, the plate being formed with a plurality of perforated holes which the radicals pass through, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

24. A remote plasma apparatus as claimed in claim 23, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

25. A remote plasma apparatus as claimed in claim 23, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

26. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets and an inner side wall, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region with no gap left between the plate and the inner side wall, the plate being electrically grounded, the plate being formed with a plurality of perforated holes which the radicals pass through, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

27. A remote plasma apparatus as claimed in claim 26, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

28. A remote plasma apparatus as claimed in claim 26, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the

upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

29. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region, the plate being electrically grounded, the plate being formed with a plurality of perforated holes which the radicals pass through and each of which has a diameter not larger than three millimeter, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

30. A remote plasma apparatus as claimed in claim 29, wherein the body further has first and second outlets which

communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

31. A remote plasma apparatus as claimed in claim 29, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

32. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets and inner side wall, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to introduce a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region with no gap left between the plate and the inner side wall, the plate being electrically grounded, the plate being formed with a plurality of perforated holes which the radicals pass through and each of which has a diameter not larger than three millimeter, wherein

aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

33. A remote plasma apparatus as claimed in claim 32, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

34. A remote plasma apparatus as claimed in claim 32, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

35. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region, the plate being formed with a plurality of perforated holes which the radicals pass through, wherein aperture ratio of the perforated holes to the plate is not greater than five percent and wherein neighboring ones of the perforated holes have a predetermined interval therebetween; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet, so that the predetermined interval is shorter than another interval between the plate and the substrate to be processed when the substrate is supported by the substrate supporter.

36. A remote plasma apparatus as claimed in claim 35, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

37. A remote plasma apparatus as claimed in claim 35, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

38. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets and an inner side wall, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region with no gap left between the plate and the inner side wall, the plate being formed with a plurality of perforated holes which the radicals pass through, wherein aperture ratio of the perforated holes to the plate is not greater than five percent and wherein neighboring ones of the perforated holes have a predetermined interval therebetween; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet, so that the predetermined interval is shorter than another interval between the plate and the substrate to be processed when the substrate is supported by the substrate supporter.

39. A remote plasma apparatus as claimed in claim 38, wherein the body further has first and second outlets which

communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

40. A remote plasma apparatus as claimed in claim 38, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

41. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region, the plate being formed with a plurality of perforated holes which the radicals pass through and each of which has a diameter not larger than three millimeter, wherein aperture ratio of the perforated holes to the plate is not greater than five percent and

wherein neighboring ones of the perforated holes have a predetermined interval therebetween; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet, so that the predetermined interval is shorter than another interval between the plate and the substrate to be processed when the substrate is supported by the substrate supporter.

42. A remote plasma apparatus as claimed in claim 41, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

43. A remote plasma apparatus as claimed in claim 41, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

44. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets and inner side wall, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma

generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region with no gap left between the plate and the inner side wall, the plate being formed with a plurality of perforated holes which the radicals pass through and each of which has a diameter not larger than three millimeter, wherein aperture ratio of the perforated holes to the plate is not greater than five percent and wherein neighboring ones of the perforated holes have a predetermined interval therebetween; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet, so that the predetermined interval is shorter than another interval between the plate and the substrate to be processed when the substrate is supported by the substrate supporter.

45. A remote plasma apparatus as claimed in claim 44, wherein the body further has first and second outlets which communicate between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively.

46. A remote plasma apparatus as claimed in claim 44, wherein:

the plate comprises, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a

plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region;

the tube walls form the perforated holes and separate the gas supplier plenum from insides of the perforated holes, respectively; and

the second inlet is connected to the gas supplier plenum so as to communicate with the processing region through the gas supplier plenum and the gas injection holes .

47. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets and first and second outlets, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet communicating with the processing region to supply a second gas into the processing region, the first and the second outlets communicating between an outside of the remote plasma apparatus and the plasma generation region and the processing region, respectively;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region, the plate being formed with a plurality of perforated holes which the radicals pass through, wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

48. A remote plasma apparatus comprising:

a body defining a cavity and having first and second inlets, the cavity comprising a plasma generation region and a processing region, the first inlet communicating with the plasma generation region to introduce a first gas into the plasma generation region, the second inlet being adapted to supply a second gas into the processing region;

an energy source arranged and adapted to apply energy within the plasma generation region to generate, from the first gas, plasma including radicals;

a plate arranged between the plasma generation region and the processing region and comprising, to define a gas supplier plenum, a top portion having a plurality of upper holes, a bottom portion having a plurality of lower holes, a plurality of tube walls connecting between the upper holes and the lower holes, respectively, and a plurality of gas injection holes communicating with the processing region, the tube walls forming a plurality of perforated holes which the radicals pass through and separating the gas supplier plenum from insides of the perforated holes, respectively, the gas supplier plenum of the plate being connected to the second inlet so that the second inlet communicates with the processing region through the gas supplier plenum and the gas injection holes , wherein aperture ratio of the perforated holes to the plate is not greater than five percent; and

a substrate supporter arranged within the processing region and adapted to support a substrate to be processed by using a reaction between the radicals passing through the perforated holes and the second gas supplied through the second inlet.

49. A method of forming a film by using a remote plasma apparatus as claimed in claim 1, the method comprising:

supplying, as the first gas, an oxygen-containing gas into the plasma generation region through the first inlet; and

supplying, as the second gas, a silicon containing gas into the processing region through the second inlet.

50. A method of forming a film on a substrate by using a remote plasma apparatus as claimed in claim 47, the method comprising:

connecting first and second exhaust emission control devices to the first and the outlets, respectively;

driving the first and second exhaust emission control devices so as to obtain a specific pressure condition where an pressure of the plasma generation region is higher than an pressure of the processing region; and

forming the film on the substrate under the specific pressure condition.

51. A film forming method as claimed in claim 50, the method further comprising, prior to the driving:

supplying, as the first gas, an oxygen-containing gas into the plasma generation region through the first inlet; and

supplying, as the second gas, a silicon containing gas into the processing region through the second inlet.